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SECTION 200.00 – PAVEMENT MARKINGS

All pavement markings shall conform to the current [Manual on Uniform Traffic Control Devices](#), as adopted by the State.

SECTION 201.00 – GENERAL PRACTICE

201.01 Pavement Marking Placement.

1. Centerlines

Place yellow centerline pavement markings on all paved State highways.

Establish and mark no-passing zones on all paved State highways (see [Section 201.02](#)).

2. Skip lines

Place white skip line(s) between lanes of traffic traveling in the same direction on all multilane routes.

3. Edge lines

Edge lines shall be placed on all paved State highways 20 feet or greater in width and an ADT of 6,000 vehicles per day or greater. (See table in [Section 202.02](#)).

Curbs in unlighted areas should be painted and retroreflectorized or have edge pavement markings (see [Section 202.02](#)).

Curbed areas with continuous lighting generally do not need edge lines when the travel lane is parallel to the curb. However, edge lines should be maintained through and 300 feet beyond all transitions, changes in width of road, and locations where the traveled way is not parallel to the edge of the road.

Refer to [Administrative Policy A-05-07](#) for maintenance service levels of pavement markings.

201.02 No-Passing Zones (See [3B MUTCD](#)). When establishing no-passing zones, apply both horizontal and vertical sight distance criteria and other engineering criteria to indicate where passing must be restricted because of the inadequate sight distance or other special conditions. Use a 3.5 feet eye height with 3.5 feet object height above the pavement to establish the zones.

[Figure 201.02-01](#) illustrates the application and guides for marking the no-passing zones.

Use the following as additional criteria:

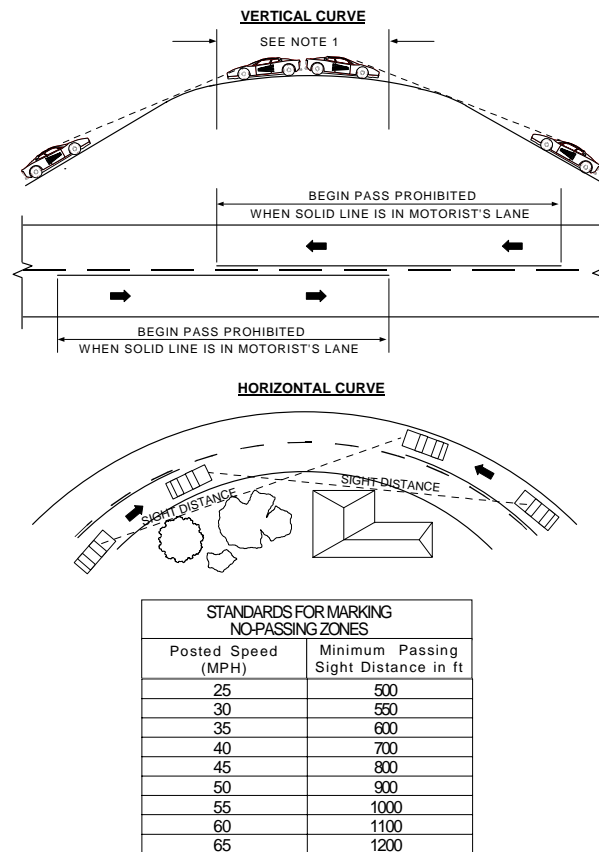
- If the zone of sight restriction is less than 100 feet, do not mark a no passing zone unless the intersection conditions under [Section 201.03](#) apply.
- For all zones where sight restriction is 100 feet or greater, provide a minimum 250 foot no passing zone, except for:

- Approaches to stops and railroad grade crossings (see [Section 201.04](#)).
- School zones or other pedestrian crossings. (No passing zones should be based on an engineering study of the location.)
- Problem intersections, raised medians and other problem sites. Use the chart at the bottom of [Figure 201.02-01](#) as a guide for minimum zone lengths. A minimum length of 350 feet is recommended for any areas having a speed limit of 20 MPH. In all cases, use engineering judgment as the basis for your final decision.
- Adjacent no-passing zones shall be connected as follows:

Speed Limit Is	Minimum Distance Between Zones In feet	Desirable Distance Between Zones In feet
	*	**
25 MPH	400	500
30 MPH	400	550
35 MPH	400	600
40 MPH	400	700
45 MPH	400	800
50 MPH	450	900
55 MPH	500	1,000
60 MPH	550	1,100
65 MPH	600	1,200

* Less than this distance, adjacent zones should be connected.

** Distance between tabular values, connection of adjacent zones shall be based upon field conditions and engineering judgment.

Figure 201.02-01 Typical No Passing Zones**NOTES:**

1. Height of eye and height of object are both 3.5' above pavement.
2. No-passing zones in opposite directions may or may not overlap, depending on alignment.

The NO-PASSING pennant sign (W14-3; [Section 163.02](#)) and the DO NOT PASS and PASS WITH CARE signs (R4-1 and R4-2; [Section 163.03](#)) may be used where additional emphasis is needed.

201.03 No-Passing Zones at Intersections. [Idaho Code, Section 49-635\(l\)\(b\)](#), requires that a vehicle shall not drive to the left of center of a highway when approaching within 100 feet of or traversing any intersection or railroad grade crossing unless otherwise indicated by traffic control devices. This provision establishes the following passing restrictions relative to pavement markings at intersections:

- If there is no roadway centerline markings, passing through an intersection is prohibited.
- If the roadway centerline marking is “skip” pavement marking only, passing through an intersection is permitted.

- If the roadway centerline marking includes a “no-passing” barrier line, passing through an intersection is prohibited.

The following guidelines shall be used to provide centerline pavement marking at intersections:

- Normal roadway pavement marking should provide a “skip” centerline through minor intersections (such as single-dwelling driveways, field approaches, turnouts, and alleys).
- Place centerline markings with a “no-passing” barrier line at least 100 feet in advance of intersections in each direction where passing is prohibited (such as major intersections).
- Place centerline markings with a “no-passing” barrier line on all paved highway approaches to at-grade railroad crossings, both urban and rural (see [MUTCD](#)).

SECTION 202.00 – TYPICAL MARKINGS

202.01 Skip Lane Lines and Centerlines. A skip lane line and centerline on State highways shall be a 4-inch wide line consisting of the following segment and gap lengths:

<u>Segment</u>	<u>Gap</u>	
Speed Limit (Rural) 40 MPH or more	12'-0"	38'-0"
Speed Limit (Urban) 35 MPH or less	8'-0"	17'-0"

(See [MUTCD 3B.05](#))

202.02 Edge Lines. Where the interstate or other divided highways have a continuous raised median that is used for separation of opposing traffic and the median curb is less than 13.5 feet from the right edge of the adjacent lane, paint the curb (retroreflectorized). If the median curb is at least 13.5 feet, but not greater than 15 feet from the right edge of the adjacent lane, place the edge line on the pavement about 18 inches from the face of the curb or paint the curb (retroreflectorized), but not both (see [Section 202.08](#)). Where the curb is over 15 feet from the right edge of the adjacent lane, place the left edge line 12 feet from the right edge line of the adjacent lane. For runaway truck ramps, paint the right edge line continuous through the ramp entrance.

When raised curb is used at intersection for channelization or to form a traffic island for definition of a turn bay, pedestrian refuge, or protection of signal poles, use [Section 202.08](#), Raised Channelization Markings for guidance.

Place edge lines on freeways or other divided highways as indicated on [Standard Drawings I-22-A](#) and [I-22-B](#). The left edge line on PCC pavements with asphalt shoulders can be placed on the AC shoulder to provide 12 feet lane widths since trucks in the left lane do not generally apply the sustained edge loadings as they do in the right lane.

Continue edge lines beyond the end of any taper or transition for at least 300 feet to help define the roadway path.

Edge lines should be continuous when approaching bridge structures and should not be broken for approaches in the near vicinity of the bridge. They should also be applied continuously across all bridges, if possible.

Place edge lines for narrow bridges as shown in [Figures 167.01-01](#), [167.02-01](#), and [167.03-01](#).

On all highways where the median is paved flush with the traffic lanes, use the double yellow line for the left edge line, except when there is a two-way turn lane.

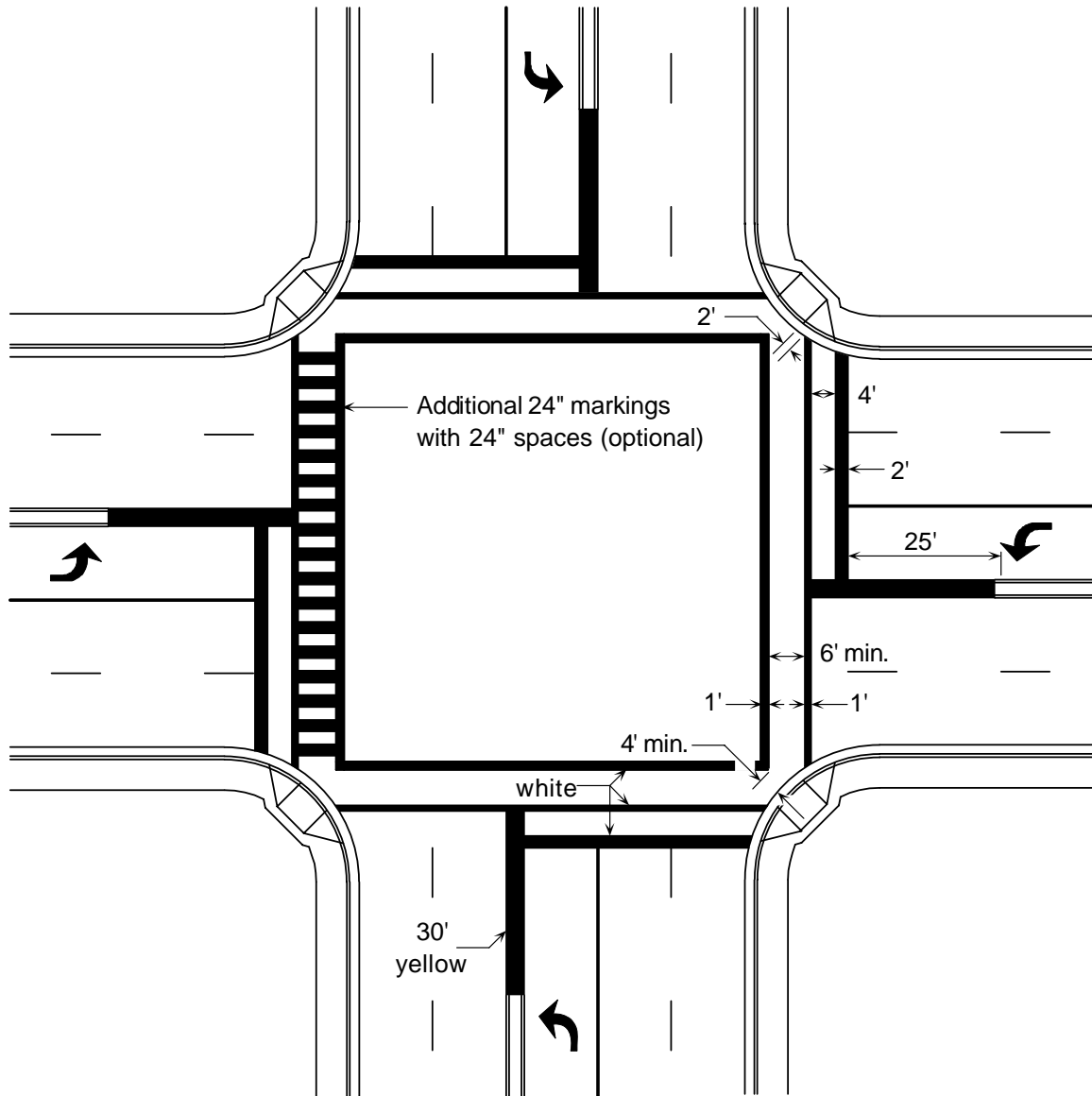
The following table is recommended for edge pavement marking two-lane, two-way highways:

Section Width	Distance from CL to	NOTE: Sections less than 20 feet in surface width should not normally have edge lines.
Feet	Edge Line in Feet	
20	9.5	
22	10.5	
24	11.5	
26 and wider	12	

202.03 Extension Through Intersections. Use a dotted or solid line to delineate the turning path through an intersection with multiple turn moves. Place it so the motorist's normal turning maneuver will be smooth and not encroach over the line. See [MUTCD 3B](#). Use a 2 foot line and a 4 foot gap for this broken line. Use the solid line with high volume turns (+200 vph). Lay out the line with cones or other markers and test drive prior to the permanent installation.

202.04 Crosswalk Lines. Marked crosswalks shall always have transverse lines not less than 12 inches in width. Additional longitudinal markings, 24 inches in width and spaced 24 inches apart, may be used to supplement the transverse lines where additional target value is desirable. See [Figure 202.04-01](#) for typical crosswalk markings and application for curb cuts.

Where a painted median exists, the crosswalks should be carried across the median.

Figure 202.04-01 Typical Crosswalk Markings

202.05 Two-Way Left-Turn Lanes. Two-way left-turn lanes are recommended for use in areas with businesses along the highway generating numerous left turns. The width of the lane should not exceed 14 feet or be less than 10 feet. Place left-turn symbol pavement arrows in the two-way left-turn lane at an appropriate spacing of 300 feet is suggested with ADT above 10,000 VPD; 500 feet if ADT is less than 10,000 VPD. Always use the arrows together as a pair spaced from 8-16 feet apart, depending on prevailing speed ([Figure 202.06-01](#)). Establishment of two-way left-turn lanes is subject to approval by the Traffic and Highway Safety Engineer.

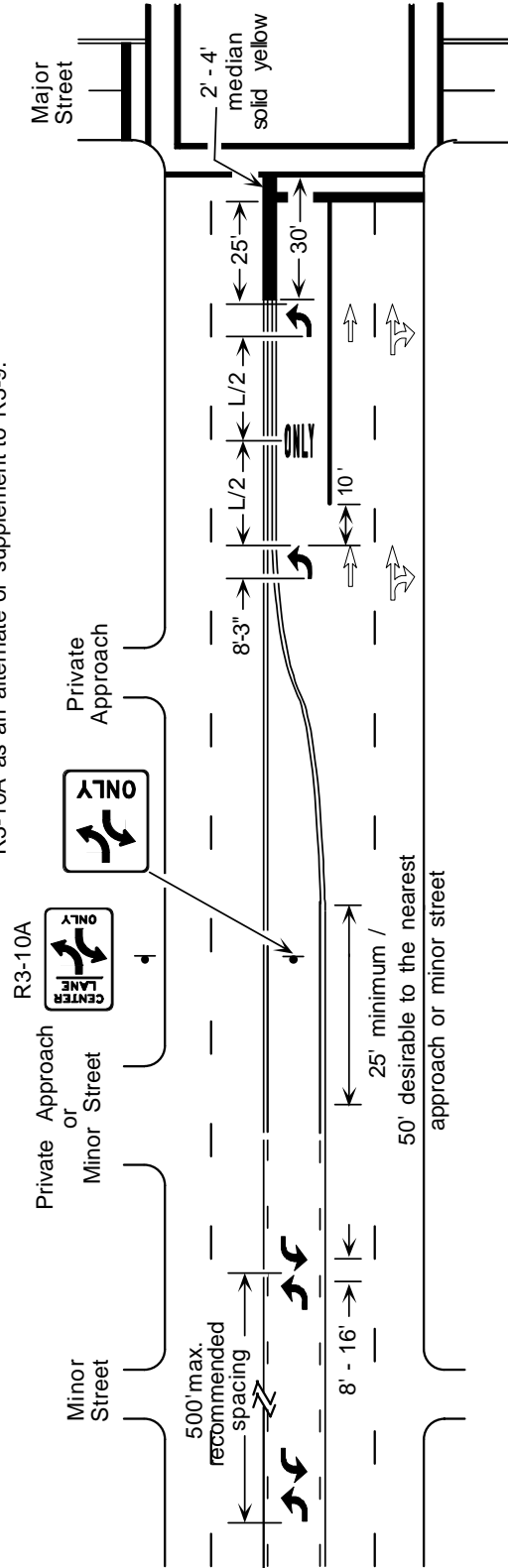
Keep the number of painted left-turn bays within two-way left-turn lanes to a minimum. Painted channelization for intersections within the limits of two-way left-turn lanes should be as shown in [Figure 202.05-01](#) or [202.05-01A](#) or [Standard Drawing I-21](#).

At high volume signalized intersections, the double yellow reverse curve pavement marking may be eliminated as shown in [Figure 202.05-02](#) and [202.05-02A](#). Median pavement marking treatment is dependent on the width of the two-way left-turn lane.

Figure 202.05-01 Painted Pavement Markings

PAINTED CHANNELIZATION

Mount R3-9 sign overhead and over the two-way turn lane, whenever possible. Use post-mounted R3-10A as an alternate or supplement to R3-9.

**NOTES:**

1. Pavement Markings in the through lanes are optional and should be installed only if justified.
2. Two way left turn lanes should be continuous through "T" intersections, but may be broken for 4-way intersections.
3. See Standard Drwg. I-21 for pavement marking details.

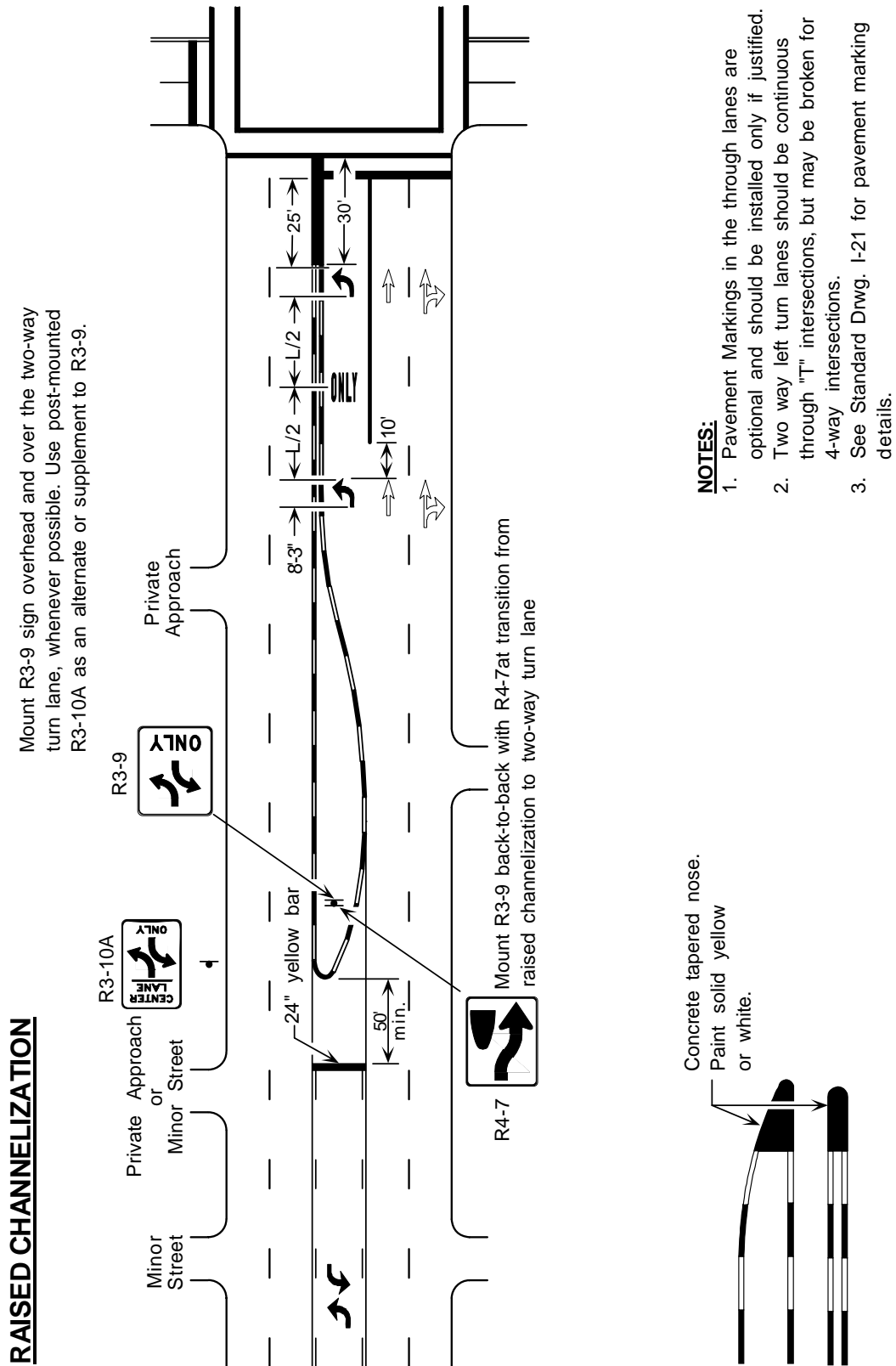
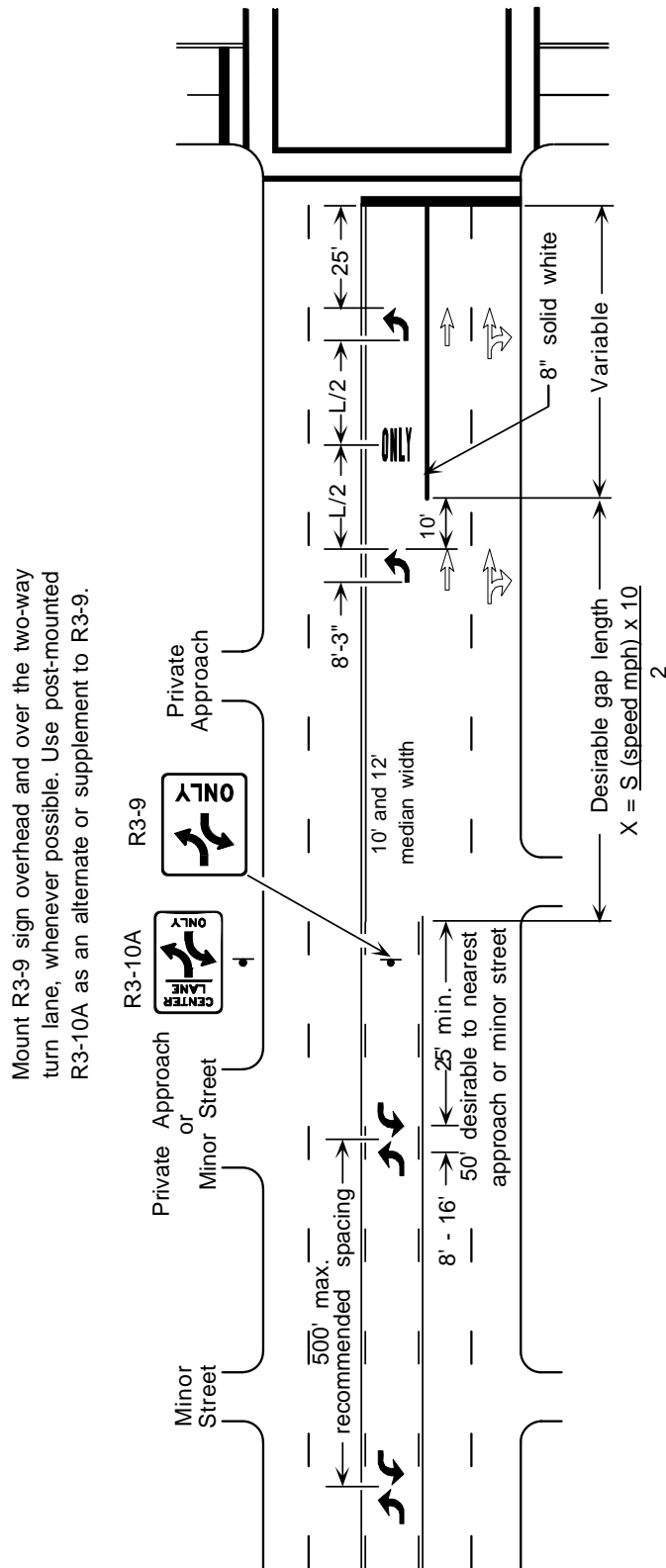
Figure 202.05-01A Raised Channelization Pavement Markings

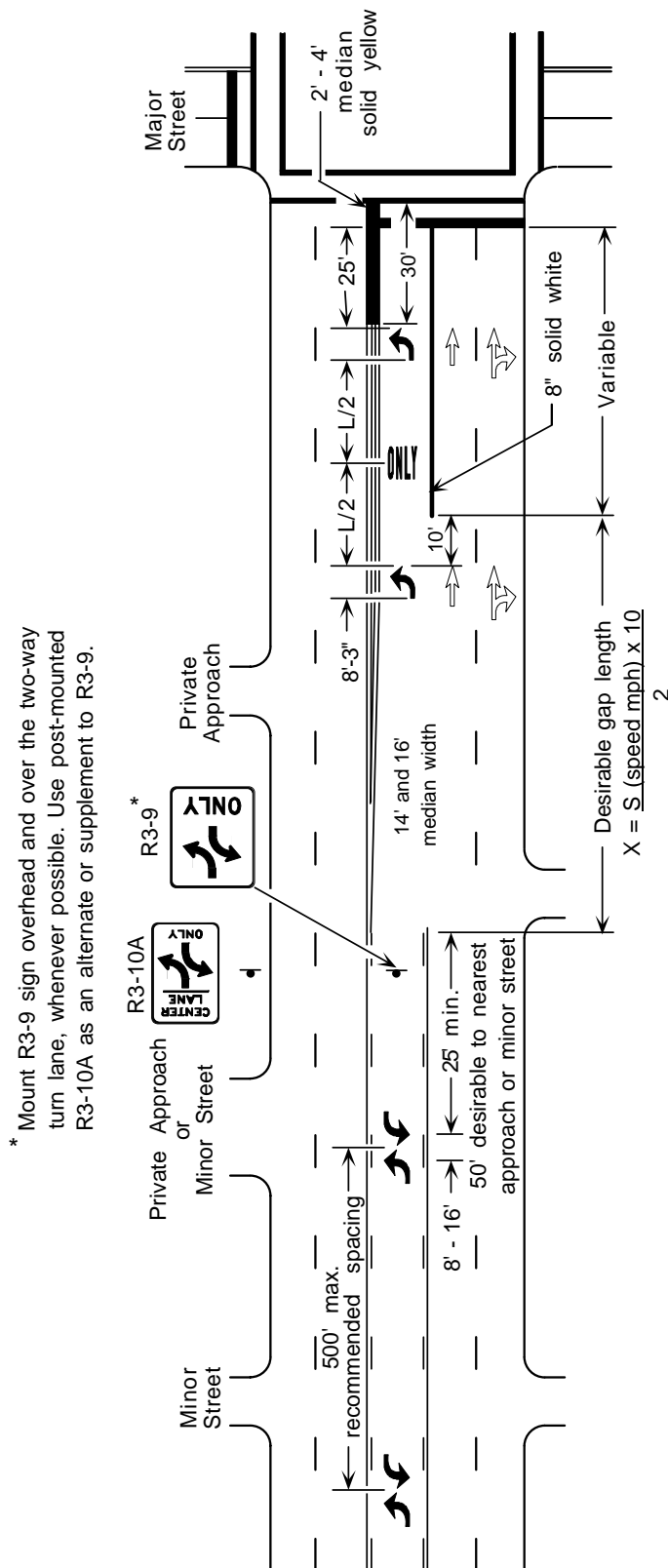
Figure 202.05-02 Painted Pavement Markings At High Volume Signalized Intersections



NOTES:

1. Pavement Markings in the through lanes are optional and should be installed only if justified.
2. Two way left turn lanes should be continuous through "T" intersections, but may be broken for 4-way intersections.
3. Elimination of double yellow reverse curve may be used at the end of two-way left turn lanes at high volume signalized intersections.
4. See Standard Drwg. I-21 for pavement marking details.

Figure 202.05-02A Painted Pavement Markings At High Volume Signalized Intersections w/ 2'-4' Painted Median

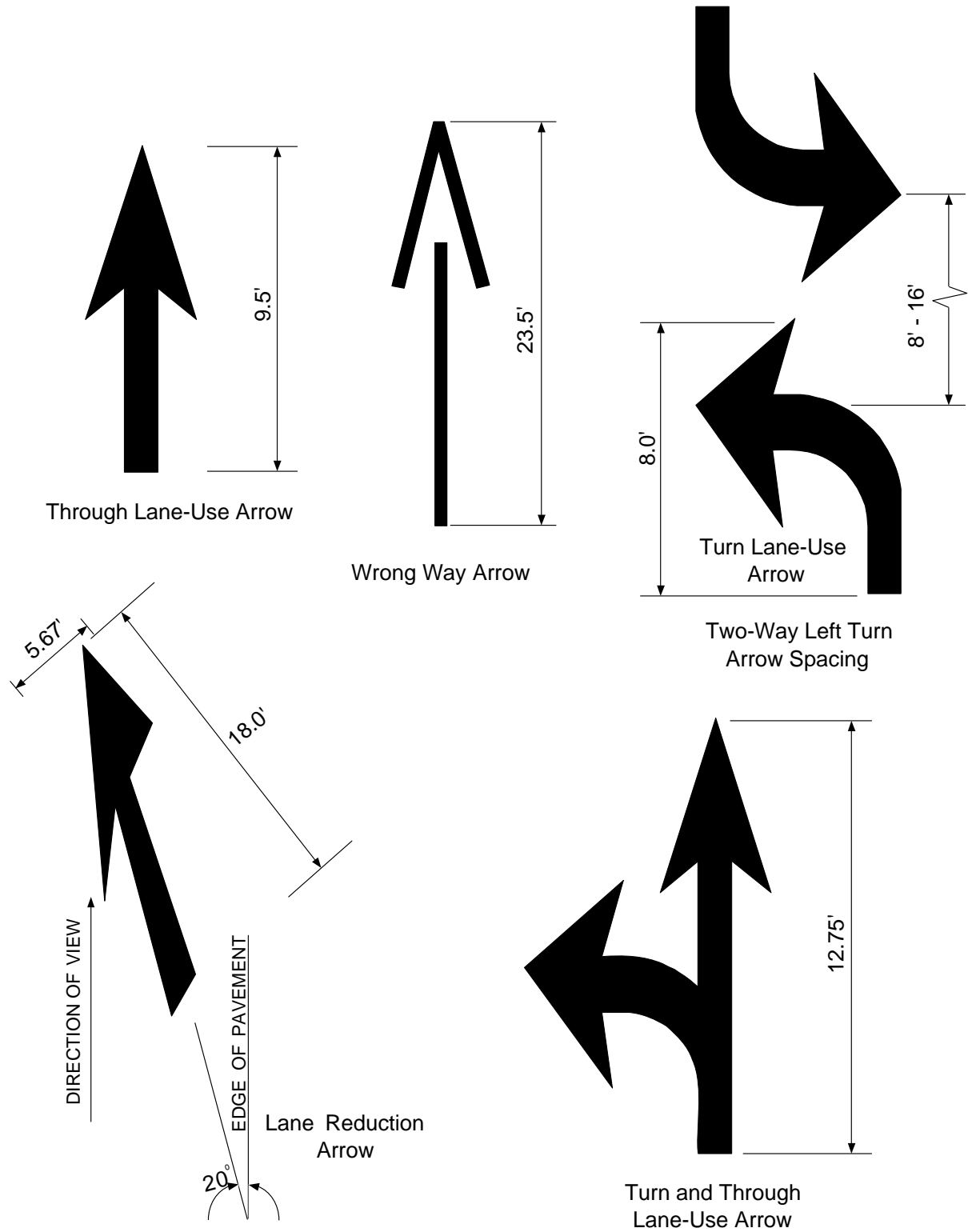


NOTES:

1. Pavement Markings in the through lanes are optional and should be installed only if justified.
2. Two way left turn lanes should be continuous through "T" intersections, but may be broken for 4-way intersections.
3. Elimination of double yellow reverse curve may be used at the end of two-way left turn lanes at high volume signalized intersections.
4. See Standard Drwg. I-21 for pavement marking details.

202.06 Lane-Use Control Arrows. Lane-use control arrow pavement markings may be used at an intersection to supplement lane-use control signs. The arrows may be used to convey either guidance or mandatory turns. Where there is a mandatory turn, such as the right lane turning right, the pavement arrow shall be accompanied by standard signs for the mandatory turn and a pavement word marking “ONLY”. If pavement arrows indicate two directions of movement, i.e., straight and right or straight and left, the signs and “ONLY” message are not needed. A channelized left-turn lane, as illustrated in [Figure 202.05-01](#) and [202.05-02](#), is a mandatory left turn, but it does not require an installed mandatory sign and the “ONLY” pavement legend is not needed since the channelized left-turn lane is designed to prevent motorist entrapment. Where normally through lanes are restricted to a turn maneuver with a lane control sign, then pavement turn arrows with the “ONLY” legend should be used. A special right-turn lane that is obvious for that purpose may use right-turn arrows without the “ONLY” message.

Additional lane-use control arrow markings may also be placed at a sufficient distance in advance of the intersection or preceding a taper at the end of a passing lane. This allows motorists to select the appropriate lane in advance of the intersection. The markings shall be of the same design as those at the intersection. (See [Figure 202.06-01](#))

Figure 202.06-01 Typical Pavement Arrow Markings

202.07 Pavement Word Markings (Warning). Pavement word markings (warning) may be used at a location that provides safe stopping sight distance for the motorists. These markings are supplemental to standard warning signs for which they apply.

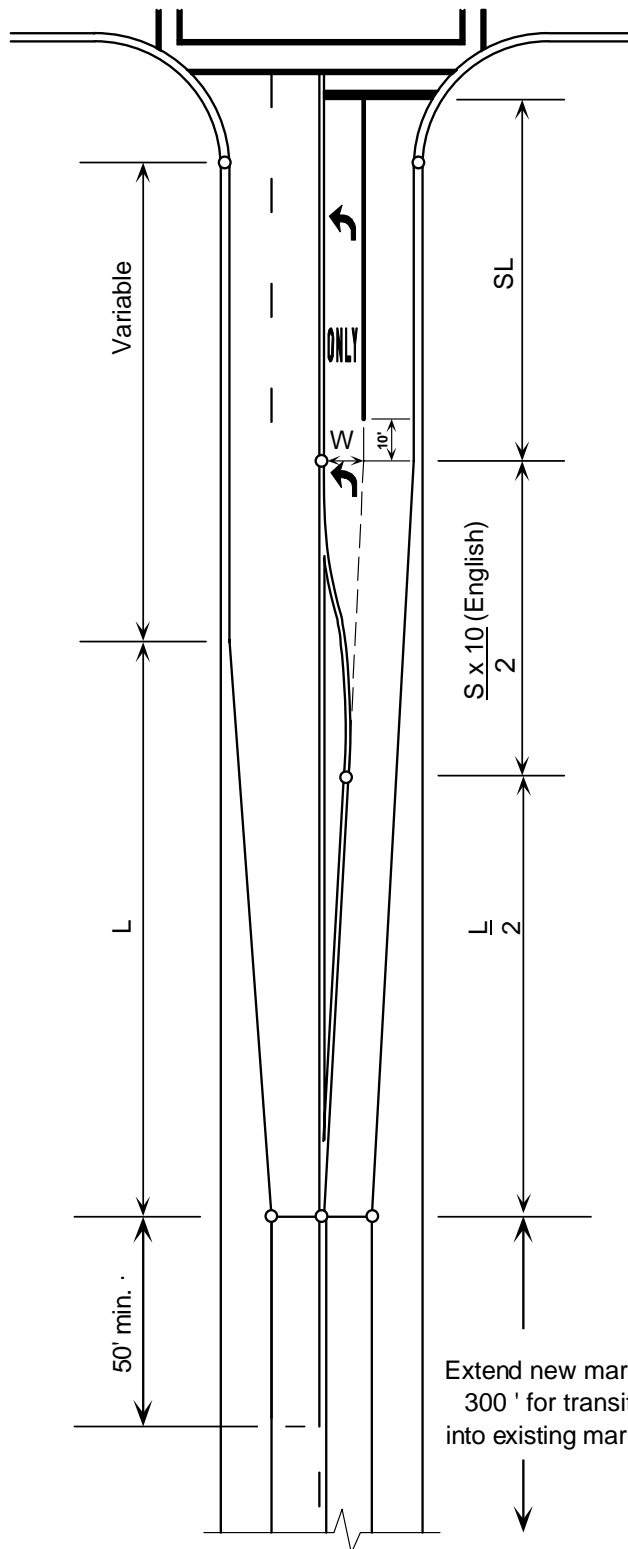
202.08 Raised Channelization Markings. Channelization curbs and curbs forming traffic islands may be painted a solid retroreflectorized color. Their color shall be yellow or white, depending on the direction(s) of travel they separate ([MUTCD 3B](#)). Lane markings should taper into the islands and not be used parallel to painted curbs or islands except for transitions (see [Figure 202.05-01A](#)).

Rigid raised pavement markers to delineate the left edge of an adjacent travel lane on channelization curbs may replace paint where conditions exist that make painting the curb impractical. Rigid raised pavement markers shall be approved for use and placed at a recommended spacing of $n/4$, where “n” is the skip cycle dimension for the roadway adjacent to the raised channelization curb.

202.09 Painted Channelization Markings. [Standard Drawing I-21](#) illustrates typical painted channelization for various widths of medians. The channelization should first be laid out with cones or other markers and test driven prior to the permanent installation of the markings.

See [Figure 202.09-01](#) for the Idaho standard treatment of left-turn bays within a tapered roadway section.

Diagonal or chevron markings should not be placed as a standard practice because of the questionable benefits and high exposure of paint crews to traffic. Exceptions should be limited to those locations where the additional emphasis is clearly needed and then only for those widths of 10 feet or more.

Figure 202.09-01 Left Turn Bay And Tapered Roadway Sections**UNSIGNALIZED**

$$SL = \frac{5V}{6}, 50' \text{ min.}$$

SIGNALIZED

$$SL = \frac{50V}{N}, 50' \text{ min.}$$

SL = Storage length in feet

V = Estimated left-turn volume during design peak hour in vehicles per hour

N = Number of signal cycles per hour in design peak hour

LENGTH OF TRANSITION (TAPER LENGTH)**POSTED****SPEED****TAPER**

Greater than or equal to 45 mph

$$L = SW$$

Less than or equal to 40 mph

$$L = \frac{WS^2}{60}$$

L = Length in feet

S = 85th percentile speed (mph)

W = Offset in feet ($W_2 - W_1$)

202.10 Standard Entrance And Exit Ramp Markings. See [Standard Drawings I-22A](#) and [I-22B](#).

When it has been determined by the Department that cattle guards are needed on an interstate ramp, pavement markings shall be placed in accordance with [Standard Drawing F-1-C](#), Painted Cattle Guard.

202.11 Passing Lane And Uphill Climbing Lane Markings. [Figure 202.11-01](#) illustrates typical markings and typical signing when no passing is allowed for opposing traffic. This should be considered whenever Average Daily Traffic (AADT) volumes exceed 3,000 vehicles. [Figure 202.11-02](#) illustrates typical pavement markings and typical signing when passing is allowed for opposing traffic. Whenever passing is allowed the R4-15 “Yield Center Lane To Opposing Traffic” sign is required. See [Figure 202.11-03](#) and [Section 163.04](#) for signing details.

PASSING LANE SIGNING AND PAVEMENT MARKINGS

ENGLISH

LENGTH OF TRANSITION (TAPER LENGTH)

L = WS (45MPH OR GREATER)
 L = $\frac{WS^2}{60}$ (40MPH OR LESS)
 L = TAPER LENGTH IN FEET
 W = OFFSET DISTANCE IN FEET ($W_2 - W_1$)
 S = OFF-PEAK 85 PERCENTILE SPEED IN M.P.H.

NOTE:
 SEE FIGURE 12-202.11.3 FOR R4-11 OR R4-12

TYPE OF TRANSITION	MINIMUM TAPER LENGTH (FEET)
Two Lane to One Lane	1000'
Three Lane to Two Lane	750'
Two Lane to Two Lane	500'

1000' @ 65 MPH
 750' @ 55 MPH
 500' MINIMUM

1000' @ 65 MPH
 750' @ 55 MPH
 500' MINIMUM

20° TYPICAL

Figure 202.11-02 Passing Lane Signing And Pavement Markings

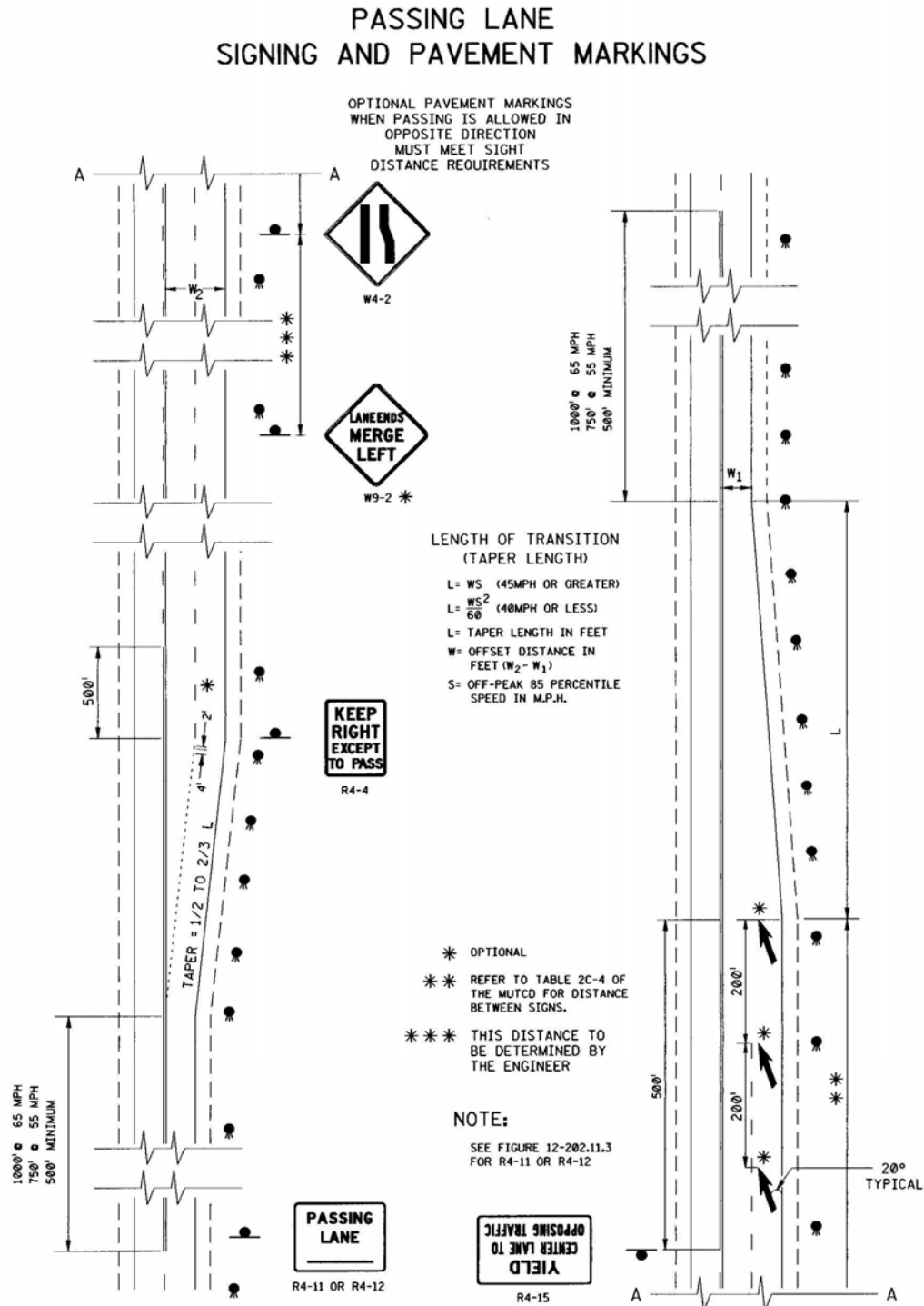
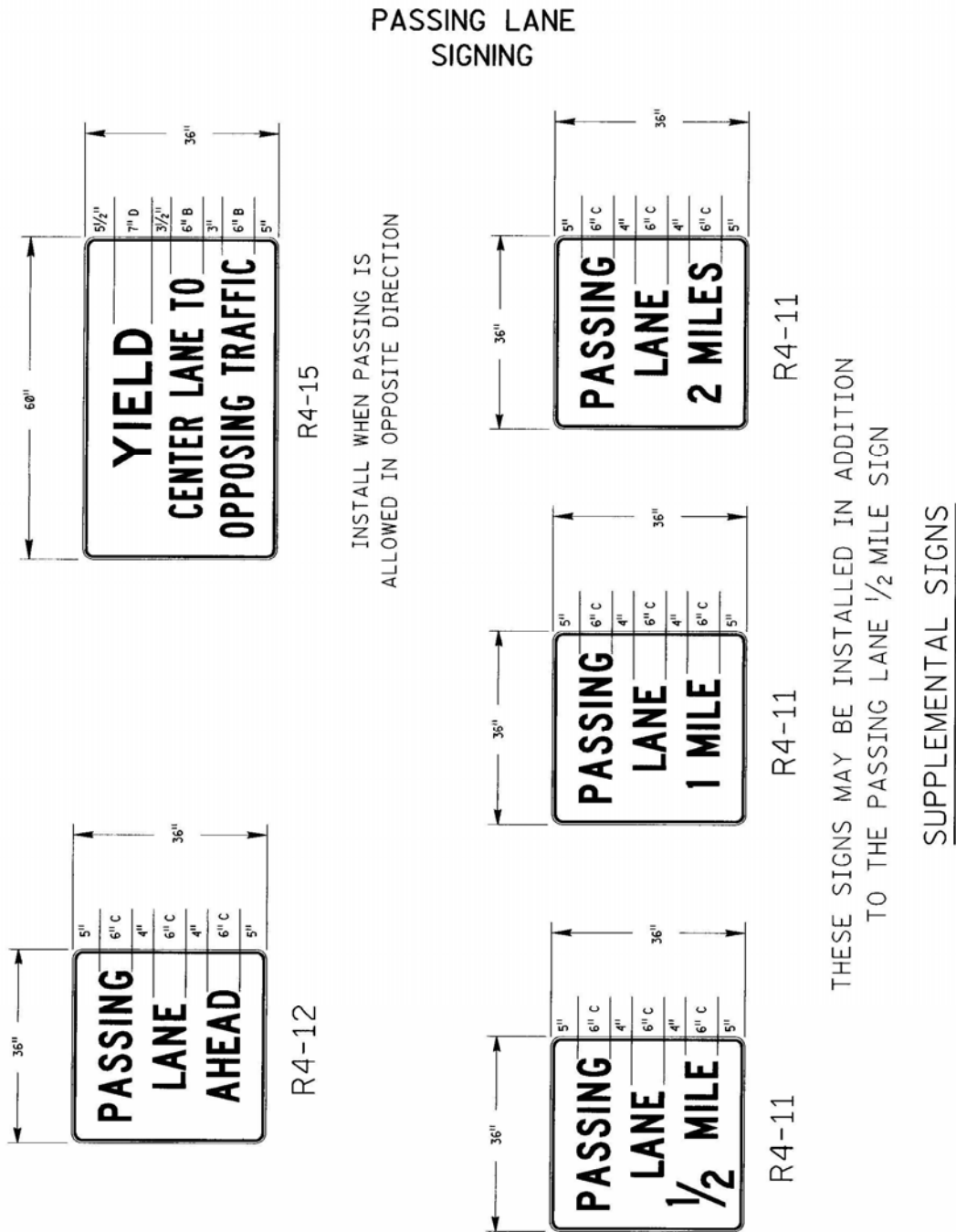
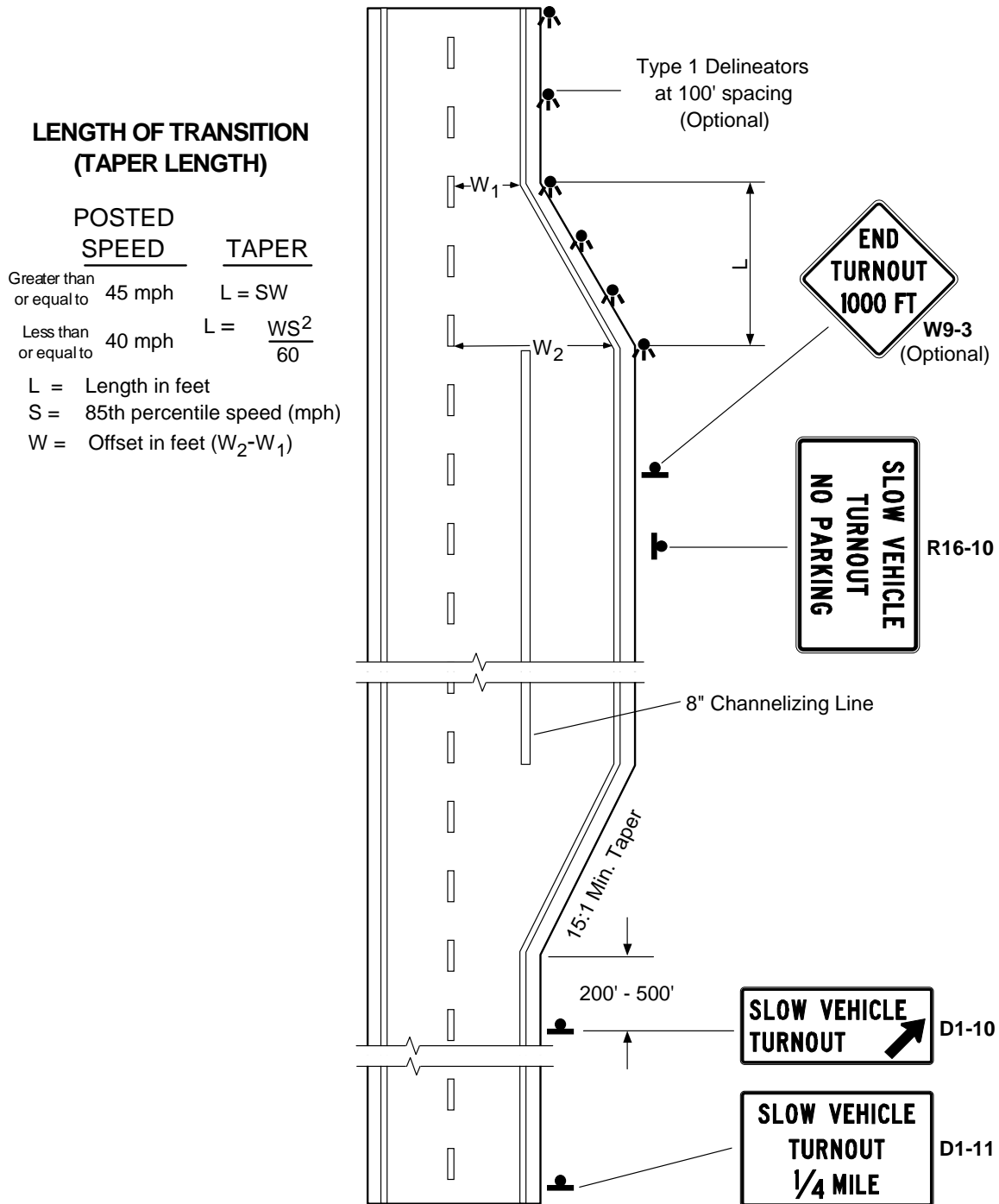


Figure 202.11-03 Passing Lane Signing



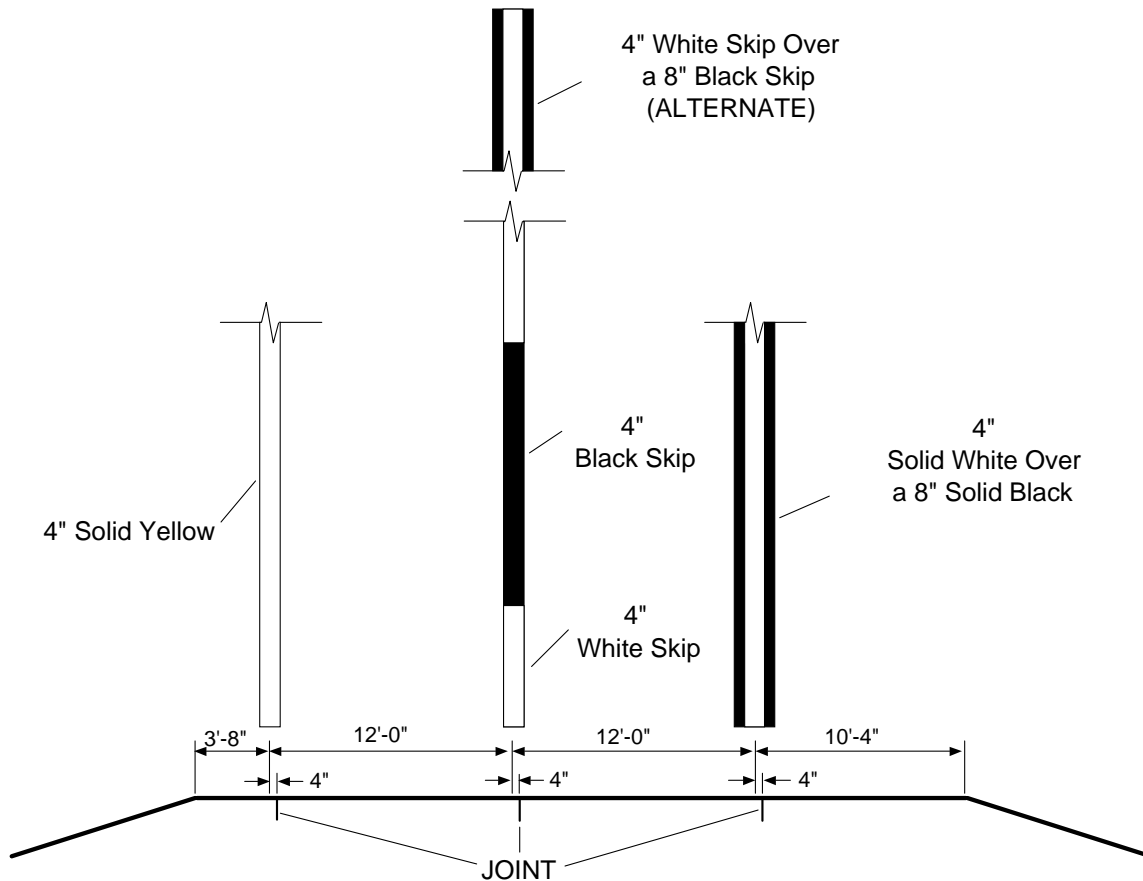
202.12 Slow Moving Vehicle Turnouts. Mark vehicle turnouts with a 8-inch solid white line between the through lane and the turnout. Do not extend the line through the entry and exit areas. An edge line may be used within the turnout area to help delineate the edge of the widened section. See [Figure 202.12-01](#) for typical marking.

Figure 202.12-01 Slow Moving Vehicle Turnout Signing And Pavement Markings

202.13 Bicycle Lanes. Mark bicycle lanes with a 8-inch solid white line to separate the cyclists from an adjacent traffic through lane. Use a 4-inch solid white line to separate a bicycle lane from a curbed parking lane, where parking stalls are painted or where all-day parking is prevalent.

202.14 Stop Bars. Locate stop bars at signalized intersections a minimum of 40 feet from a standard signal head. For programmed signal heads, locate the stop bars a minimum of 50 feet from the signal head. Stop bar location relative to a marked crosswalk is shown in [Figure 202.04-01](#).

202.15 Pavement Markings On Concrete Surfaces. Concrete roadways, because of the whiteness of the surface, may require the use of a black base line with white markings to outline the standard markings as illustrated in [Figure 202.15-01](#). DO NOT place the stripe on the pavement joint. Offset the lane and edge line stripes left of the joint. Refer to [Section 202](#) for further information.

Figure 202.15-01 Typical Pavement Markings On Concrete Surface

Pavement markings may be done as shown above if the concrete surface is too light in color.

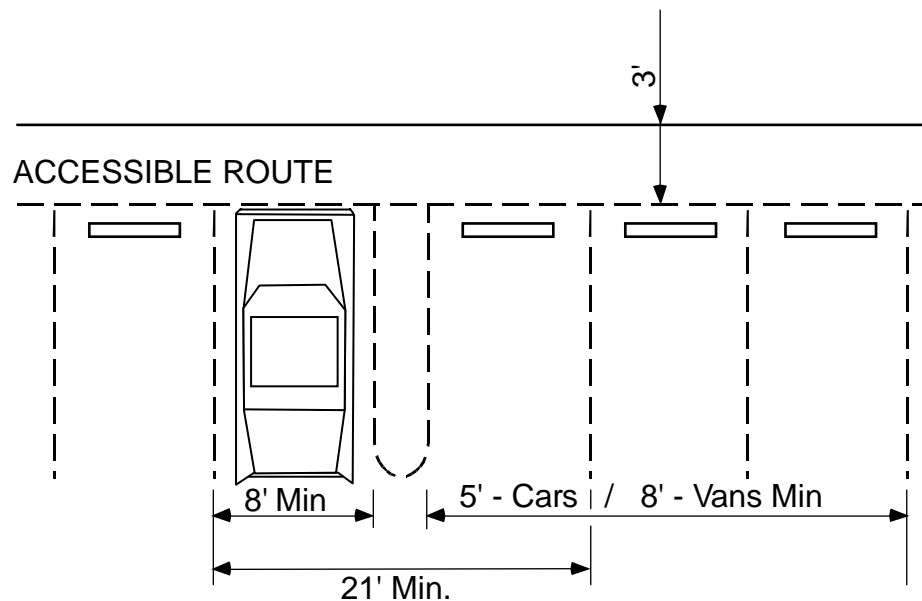
1. A 4" black skip pavement marking will be painted between the 4" white skip pavement marking, or as an alternate, the 4" skip pavement marking can be painted over a 8" black pavement marking.
2. A 8" black shoulder pavement marking will be painted and a 4" white pavement marking will be painted over the black.

202.16 Disabled Parking. [Section 49-213 of the Idaho Code](#) covers signing and markings for persons with disabilities. Where disabled parking is allowed on the State highway system, the use of diagonal parking is the preferred method. Placement of parking spaces for the disabled parallel to the travel lanes is discouraged and should be used only when all other alternatives have been exhausted.

Parking spaces should be provided for the disabled in rest areas that have spaces marked.

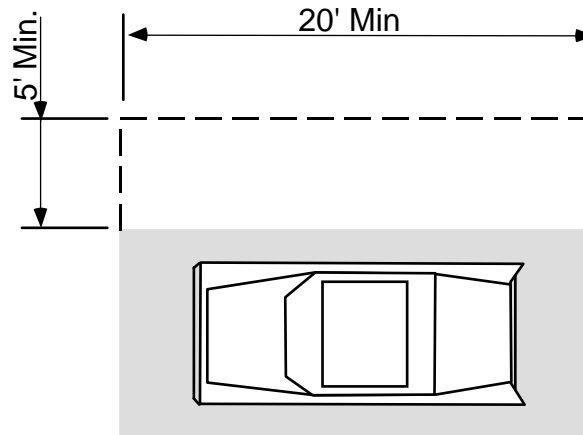
Use the following design criteria as a guide:

- Accessible parking spaces should be on level ground and located closest to the accessible entrance. If sloped pavement or other existing conditions prevent its location closest to the entrance, then the closest level area should be selected.



Dimensions of Parking Spaces

- The access aisle shall be a minimum of 60 inches wide for cars or a minimum of 8 feet wide for vans. The accessible route connected to the access aisle at the front of the parking spaces shall be a minimum of 3 feet.
- Provide one space for each 35 stalls or fraction thereof.



Access Aisle at Passenger Loading Zones

- All parking spaces for the disabled must be installed adjacent to accessible ramps for persons with disabilities to prevent the individual from entering the travel lanes to reach the sidewalk. The minimum access aisle width required at a passenger loading zone is 20 feet.
- Mark all parking spaces for the disabled with OSHA approved blue paint:
 - For parallel parking spaces use blue paint on the curb adjacent to the space; or if the curb is not present, paint a 6-inch minimum bar on the pavement where the curb would be if it existed.
 - For angle parking of 45 to 90 degrees, use the blue paint on the curb in front of the stall; or if curb is not present, paint a 6-inch minimum bar on the pavement where the curb would be if it existed.

In the law there is no mandatory requirement for the disabled symbol on the pavement, but it is felt that the symbol does help reserve the space for the disabled.

Signing shall consist of the R7-11 and R7-13 signs. See [Section 161.08](#).

202.17 Work Zone Pavement Markings. Work zone pavement markings are considered interim pavement markings (such as temporary tape, temporary raised pavement markings, etc.) if they guide traffic for a period less than 14 days. Temporary pavement markings are those that are allowed to remain in place until the earliest date when it is practical and possible to install pavement markings that meet the [MUTCD Part 3](#) standards for permanent pavement markings. Temporary pavement markings should not be in place for more than 14 days unless justified by an engineering study. See [MUTCD Section 6F.72](#) for temporary pavement marking requirements. For additional pavement marking guidelines see [Section 602](#), Construction Projects.

Markings in place for a period beyond 14 days shall be either permanent markings or traffic paint markings conforming to the [MUTCD Part 3](#).

The requirements for interim and permanent markings shall be as follows:

202.17.01 Interim Pavement Markings on Federal-Aid Projects

- a. Placement: Install interim markings on same day as surfacing where centerline and lane definition is important.
- b. Length and Cycle: Use a 2-foot line on the same cycle length as permanent markings. A 2 foot stripe placed at half cycle spacing may be used on roadways with severe curvature.
- c. Barrier Lines: No-passing zones may be identified with signs at the beginning and end of the no-passing zones in lieu of markings. However, no-passing barrier lines shall be marked within 14 days on low volume roads and within 3 days on high volume roads.
- d. Edge Lines - Edge lines are not required unless specified in the project plans. Raised pavement markers used for edge lines shall be spaced at $N/8$ where “N” is the cycle length for broken centerline markings.
- e. Raised Markers: Rigid raised pavement markers may be used with three retroreflective markers spaced at 2 foot intervals representing a 4 foot short-term line. Two retroreflective markers at 2 feet intervals will be used for a 2 foot line. Continuous retroreflective markers spaced at one-eighth of cycle length may be substituted for solid lines. Cycle lengths are normally 50 feet in speed zones 40 m.p.h. or greater and 25 feet in speed zones 35 m.p.h. or less.
- f. Seal Coats: Flexible plastic tabs may be used on seal coats for vehicle guidance on the roadway. Flexible raised pavement markers may be installed at the same cycle length as permanent marking locations if the roadway is to be permanently painted prior to being opened to traffic. Flexible raised pavement markings shall be placed in accordance with the latest edition of the [MUTCD](#), as adopted by the State, when the roadway is to be opened to use by traffic prior to placement of permanent pavement markings. Additional flexible tabs should be used to mark the beginning and end of no-passing zones. Half cycle lengths shall be used on roadways with severe curvature. Markers within a turn bay or painted median shall be placed at no more than 26.25 feet intervals including all angle points. However, any vehicle passing through the seal coated section shall be prohibited from passing by signing until brooming is completed and permanent pavement markings are installed.

202.17.02 Permanent Pavement Markings on Federal-Aid Projects

- a. Placement: Permanent markings shall be in place on new alignment before the new alignment is opened to traffic. Permanent markings shall be installed on permanent pavement surfaces within 14 days of paving completion.

- b. **Work Suspension:** Permanent pavement markings shall be installed on temporary pavements and interim pavement lifts open to traffic where the project work is suspended for the winter or other extended time periods of 14 or more days' duration.
- c. **Barrier Lines:** Centerlines on all two-lane, two-way operations on one roadway of a normally divided highway shall include double yellow permanent painted markings, tubular markers at 100 foot intervals, and rigid raised pavement markings at intervals 50 foot intervals offset 25 feet from the tubular markets.

202.17.03 State-Funded Projects and Maintenance Work

The State of Idaho will comply with all federal pavement marking requirements identified above.

SECTION 203.00 – MATERIALS

203.01 Paint Markings. Currently retroreflectorized paint is the most economical method to provide pavement markings and should be used on all roadways with low and moderate traffic volumes.

Most roadways require retracing of the painted markings at least once a year. Roadways with very low volumes may be able to go two years. Retroreflectivity normally becomes very dull after two years on low volume roads although daytime line visibility may be adequate.

See [Figure 203.03-01](#) for estimated square feet for each type of pavement legend marking arrows or words that is to be used for estimating quantities on contract construction projects.

203.02 Extruded Or Hot Sprayed Thermoplastic Markings. Extruded or hot sprayed applied thermoplastic markings may be justified for roadways with very high traffic volumes. High initial installation costs preclude its use on low volume roadways. In areas of considerable snowfall, the abrasive action of sanding and extensive snowplowing will reduce the useful life of the thermoplastic considerably and under these conditions painted traffic lines should be considered.

Extruded or hot applied thermoplastic when applied in mild climate regions and under normal conditions should give up to five years of useful service life.

When thermoplastic markings are used on concrete surfaces they should not be placed on the expansion joints but be installed adjacent to the joints.











203.03 Preformed Thermoplastic Markings. Preformed thermoplastic markings have the same estimated service life as hot applied thermoplastic under similar conditions. Preformed thermoplastic is normally used in areas of high traffic volumes that require relatively small quantities of thermoplastic markings.

Preformed thermoplastic can be installed by either the inlaid or overlaid method. Use the inlaid method in new roadway surfaces where it can be easily rolled with the final roller embedding it flush with the finished roadway surface. Use the overlaid method on existing roadway surfaces. After rolling, it will protrude slightly above the finished roadway surface.

When preformed thermoplastic is used on concrete surfaces, it should not be placed on the expansion joints but may be installed adjacent to the joints.

See [Figure 203.03-01](#) for estimated square feet for each type of pavement legend marking arrows or words that is to be used for estimating quantities on contract construction projects.

Figure 203.03-01 Pavement Marking Dimensions

Legend	Size in Feet (width x height)	Approximated ft ²
	3'-8" x 9'-6"	12.92
 or 	6'-7" x 8'-0"	14.60
 or 	8'-0" x 12'-9"	28.23
 or 	5'-6" x 18'-6"	39.50
 or 	6'-0" x 9'-0"	20.42
 ONLY	8'-0"	22.20
SCHOOL (1 Lane)	8'-0"	32.63
SCHOOL (2 Lanes)	10'-0"	80.92
STOP	8'-0"	21.31
STOP AHEAD	8'-0"	51.95
SIGNAL AHEAD	8'-0"	61.94
SCHOOL XING	8'-0"	54.39
PED XING	8'-0"	40.63
HOV LANES ONLY	13'-0"	14.56
R X R	8'-0" x 20'-0", 6'-0" R	64.58 (Does not include STOP bars)
BIKE	4'-0"	11.10
US	8'-0"	11.32
SH	8'-0"	11.77
I	8'-0"	2.66
0	8'-0"	6.20
1	8'-0"	2.66
2	8'-0"	5.10
3	8'-0"	5.20
4	8'-0"	4.70
5	8'-0"	6.10
6	8'-0"	5.60
7	8'-0"	4.00
8	8'-0"	7.00
9	8'-0"	5.60

203.04 Pavement Marking Removal. Removal of painted pavement markings, plastic pavement marking tape, thermoplastic pavement markings, and raised pavement markings shall be with a method that completely removes old marking material and leaves minimal pavement scars or surface texture differences that could be confused with pavement markings regardless of road conditions or time of day. Painting over existing pavement markings with any obliteration product is an unacceptable method of pavement marking removal. The prerequisite for determining the best method of pavement marking removal is that treatment which has the least negative effect on the roadway surface.

SECTION 204.00 – RAISED MARKERS

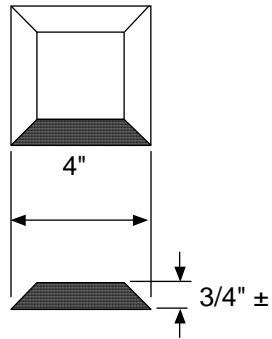
204.01 General. Raised pavement markers may be used in lieu of or to supplement standard painted or thermoplastic markings. This type of marker provides a greater amount of night wet-weather visibility than any other system. However, they do have a high initial installation cost and maintenance costs. One disadvantage is that studded tires cause severe wear and breakage of both the ceramic and plastic markers. Special steel protective devices are required where the markers are subjected to snowplowing operations.

Raised pavement markers may consist of ceramic markers, either plain or retroreflectorized, plastic retroreflectorized markers, or retroreflectorized snowplowable markers. See [Figure 204.01-01](#) for typical marker sizes and types.

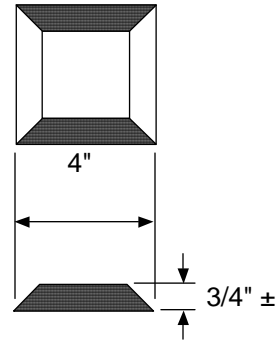
The smallest size is normally used for delineation of broken lane and centerlines. The larger size, approximately 8 inches in diameter, is used primarily for lane channelization or to delineate traffic islands with low speed traffic (30 MPH or less).

When raised pavement markers are used on concrete surfaces, they should be installed adjacent to the joints. These markers may be used on any roadway where economically justified due to maintenance costs or safety.

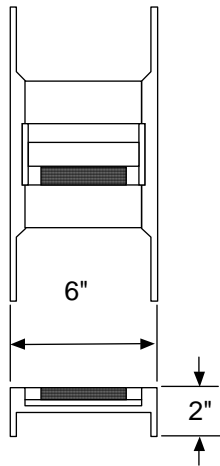
Typical spacings for these markers are shown in [Figures 204.01-02](#) and [204.01-03](#).

Figure 204.01-01 Typical Raised Pavement Markers

TYPE "2"
(REFLECTORIZED-ONE SIDE)

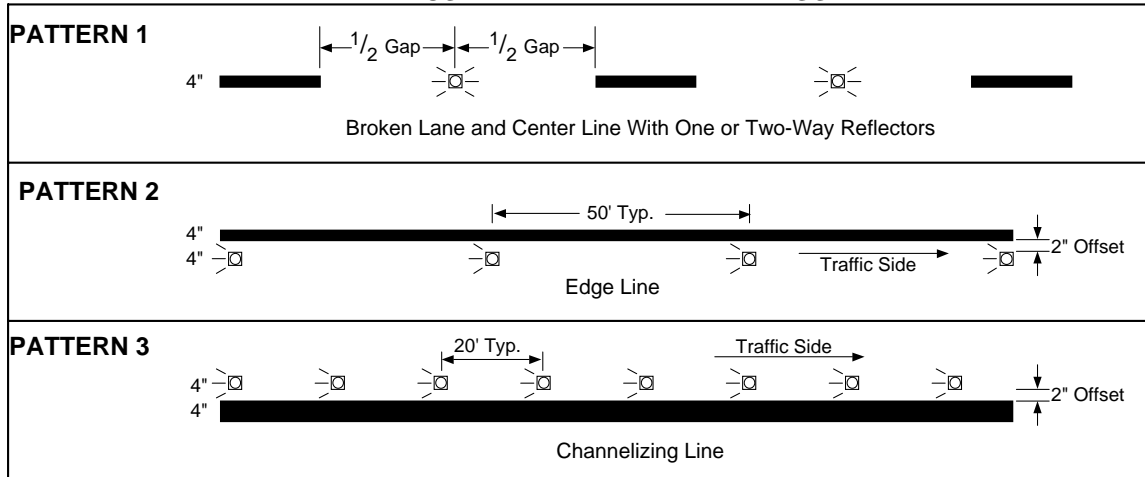
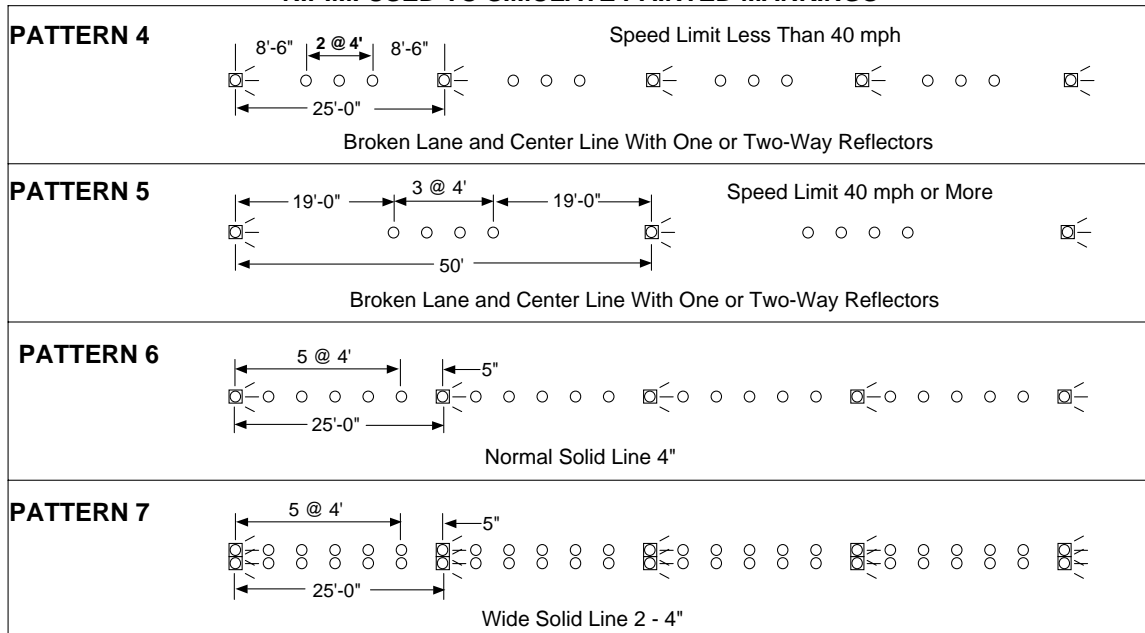


TYPE "3"
(REFLECTORIZED-TWO SIDES)



TYPE "6"
(REFLECTORIZED-ONE SIDE)
SNOW-PLOWABLE

A, AS SHOWN
B, TWO-WAY

Figure 204.01-02 Raised Pavement Markings (R.P.M.) Patterns**R.P.M. USED WITH PAINTED MARKINGS****R.P.M. USED TO SIMULATE PAINTED MARKINGS****SYMBOLS**





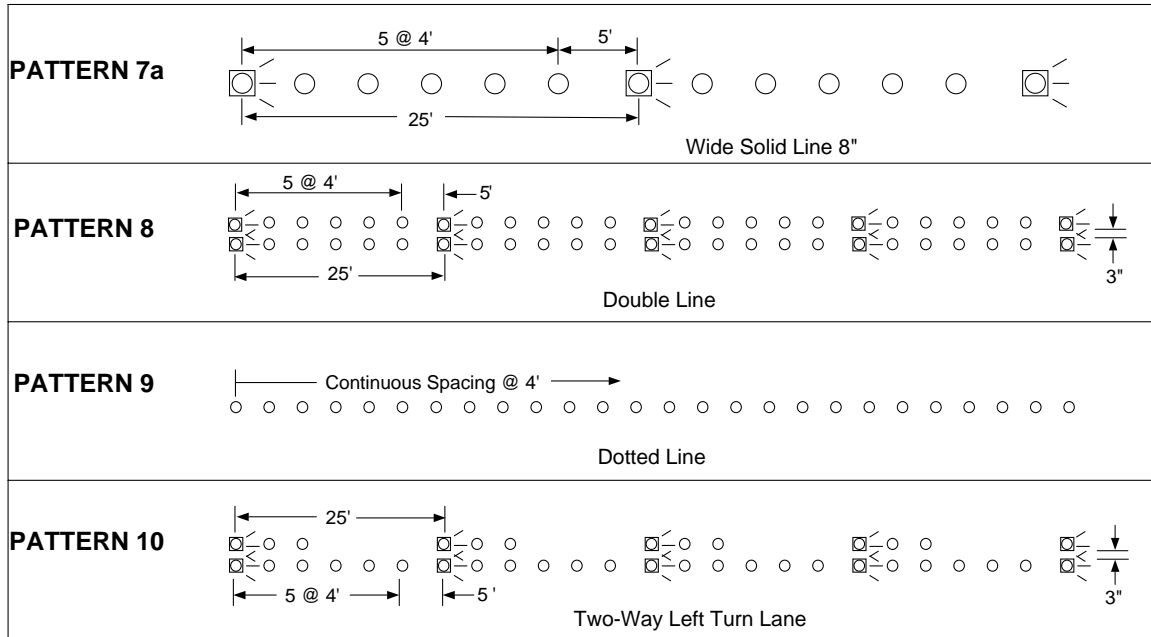
-  White or Yellow Paint
-  Non-Reflective White or Yellow R.P.M.
-  One-Way Reflective White or Yellow R.P.M.
-  Two-Way Reflective White or Yellow R.P.M.

Figure 204.01-03 Raised Pavement Marking (R.P.M.) Patterns**R.P.M. USED TO SIMULATE PAINTED MARKINGS****SYMBOLS**

- White or Yellow Paint
- Non-Reflective White or Yellow R.P.M.
- One-Way Reflective White or Yellow R.P.M.
- Two-Way Reflective White or Yellow R.P.M.